

Case

AF/2834/B

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

<b>APPEAL BRIEF TRANSMITTAL</b>		Docket Number: <b>10191/1234</b>	Conf. No. <b>2255</b>
Application Number <b>09/446,390</b>	Filing Date <b>December 21, 1999</b>	Examiner <b>Dang D. LE</b>	Art Unit <b>2834</b>
Invention Title <b>ELECTRICAL MACHINE HAVING A COMMUTATOR</b>		Inventor <b>Dieter SCHULER et al.</b>	

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Signature: [Signature]  
Jong H. Lee

Further to the Notice of Appeal dated May 15, 2003 (filed at the PTO on May 19, 2003) for the above-referenced application, enclosed are three copies of an Appeal Brief. Accompanying the Appeal Brief is the Appendix to the Appeal Brief.

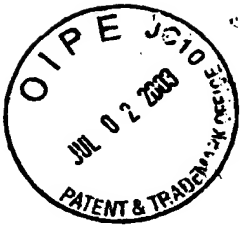
The Commissioner is hereby authorized to charge payment of the 37 C.F.R. § 1.17(c) appeal brief filing fee of \$320.00, and any additional fees associated with this communication to the deposit account of **Kenyon & K nyon**, deposit account number **11-0600**.

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R. No.  
26,197



[10191/1234]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants : Dieter SCHULER et al.  
Serial No. : 09/446,390  
Filed : December 21, 1999  
For : ELECTRICAL MACHINE HAVING A COMMUTATOR  
Examiner : Dang Dinh Le  
Art Unit : 2834  
Confirmation No. : 2255

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Date: 6/30, 2003 Reg. No. 36,197

Signature: [Signature]  
Jong-H. Lee

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**APPELLANTS' APPEAL BRIEF  
UNDER 37 C.F.R. § 1.192**

S I R :

Applicants filed a Notice of Appeal dated May 15, 2003 appealing from the Final Office Action dated January 3, 2003, in which claims 6 and 1-24 of the above-identified application were finally rejected. This Brief is submitted by Applicants in support of their appeal.

**I. REAL PARTY IN INTEREST**

The above-identified Applicants and Robert Bosch GmbH of Stuttgart, Germany, are the real parties in interest.

## II. RELATED APPEALS AND INTERFERENCES

No appeal or interference which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal is known to exist to the undersigned attorney or is believed by the undersigned attorney to be known to exist to Applicants.

## III. STATUS OF CLAIMS

Claims 6 and 10-24 are pending in this application. Applicants appealed from the final rejection of claims 6 and 10-24 made in the final Office Action mailed by the Patent Office on January 3, 2003. Of the claims presently on appeal, claims 6, 10, 15 and 20 are independent. Claims 16-19 and 22 ultimately depend from claim 6; claims 11-14 and 23 ultimately depend from claim 10; claim 24 depends from claim 15; claim 21 depends from claim 20. The claims on appeal are set forth in the Appendix submitted herewith.

## IV. STATUS OF AMENDMENTS

No amendment has been made subsequent to the final Office Action mailed January 3, 2003.

## V. SUMMARY OF THE INVENTION

The present invention relates to an electric machine having a commutator, at least one brush and a supply of oil lubricant for providing lubrication between the commutator and the at least one brush. According to the present invention, the lubricant, e.g., an oil, is applied to the brushes (19, 20) only in the area of collector-side end faces (29, 30) before installing the brushes (19, 20) in the electric machine (2). (Fig. 2; Abstract). The lubricant may be applied by spraying or by some other method, and application of lubricant here is limited to the end faces (29, 30) of the brushes (19, 20) or to short partial lengths (19a, 20a) thereof adjacent to the end faces. (Fig. 2; Abstract). By limiting the supply of lubricant in this way, the lubricant is used up during run-in of the electric

machine (2) or not too long thereafter, with the advantage that it counteracts the risk of brush abrasion fines or collector abrasion fines collecting in grooves (28) between collector bars (27), the less abrasion fines deposited in the grooves (28), the lower the risk of parasitic currents developing between the bars (27). (Fig. 2; Abstract).

As shown in Figure 1, for example, an electric machine 2 has an armature 7 that can rotate between permanent magnets 5 and 6 and a collector 8 allocated to armature 7, and a friction bearing 10 next to collector 8. (Fig. 1; p. 4, l. 16-25). Friction bearing 10 includes a friction bearing bush 12, which is impregnated with an oil lubricant. (Fig. 1; p. 4, l. 25-31). In this example, two brushes 19, 20 made either partially of carbon or mainly of a pressed metal powder or alloys according to the related art are provided for collector 8. (Fig. 1; p. 5, l. 8-10). In addition, a dust guard 25 may be provided on shaft 9 between collector 8 and friction bearing bush 12. (Fig. 1; p. 5, l. 16-17).

Figure 2 shows end faces 29, 30 of brushes 19, 20, with these end faces 29 and 30 being directed against collector 8 for electrically conducting contact with bars 27 of this collector 8. (Fig. 2; p. 5, l. 31 - p. 6, l. 1). In the example shown here, each of two brushes 19, 20 is prepared with an oil lubricant, for example, along a partial length 19a and 20a marked graphically starting from these end faces 29 and 30. (Fig. 2; p. 6, l. 1-4). This oil lubricant may be sprayed or otherwise applied with or without diluting before installing brushes 19, 20 in electric machine 2. (Fig. 2; p. 6, l. 4-8). It may be sufficient if one of two brushes 19 or 20 is provided with a supply of oil lubricant because all collector bars 27 come in contact with the lubricant, starting from this prepared brush. (Fig. 2; p. 6, l. 15-18). If both brushes 19 and 20 are each installed and provided with a supply of lubricant, this yields the advantage that only one type of brush need be kept in stock. (Fig. 2; p. 6, l. 26-28).

Figure 3 shows another illustration of brush 20, which is rotated 90° in comparison with Figure 2. (Fig. 3; p. 6, l. 25-26). This makes grooves 31, which

are aligned in the circumferential direction of collector 8, visible. (P. 6, l. 26-28). These grooves 31 permit a rapid adaptation of the curvature of end faces 29 and 30 of brushes 19 and 20 to the external shape of bars 27, with the goal of rapidly creating a contact surface corresponding to the respective dimensions of brushes 19, 20 in the circumferential direction of collector 8. (Fig. 3; p. 6, l. 29 - p. 7, l. 1). When such grooves 31 are cut into brushes 19, 20 before applying oil lubricant, they are also useful as storage containers for the oil lubricant. (Fig. 3; p. 7, l. 1-4).

## VI. ISSUES FOR REVIEW

The following issues are presented for review on appeal in this case:

A) Whether claims 15, 20, 21 and 24 are anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 2,172,045 ("Burr").

B) Whether claims 6, 10, 11, 14, 16, 19, 22 and 23 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 2,172,045 ("Burr") in view of U.S. Patent No. 2,555,997 ("Portail").

C) Whether claims 12 and 17 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 2,172,045 ("Burr") in view of U.S. Patent No. 2,555,997 ("Portail") and further in view of U.S. Patent No. 3,841,906 ("Grunewald").

D) Whether claims 13 and 18 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 2,172,045 ("Burr") in view of U.S. Patent No. 2,555,997 ("Portail") and further in view of U.S. Patent No. 4,820,948 ("Rogelein").

E) Whether claims 6, 10, 11, 14-16 and 19-24 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 5,909,077 ("Bruhn") in view of U.S. Patent No. 2,555,997 ("Portail").

F) Whether claims 12 and 17 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 5,909,077 ("Bruhn") in view of U.S. Patent No. 2,555,997 ("Portail") and further in view of U.S. Patent No. 3,841,906 ("Grunewald").

G) Whether claims 13 and 18 are rendered obvious under 35 U.S.C. § 103(a) by U.S. Patent No. 5,909,077 ("Bruhn") in view of U.S. Patent No. 2,555,997 ("Portail") and further in view of U.S. Patent No. 4,820,948 ("Rogelein").

## VII. GROUPING OF CLAIMS

For each ground of rejection addressed in this appeal, all claims subject to the particular rejection will be argued as a single group.

## VIII. ARGUMENT

### A. Rejection of Claims 15, 20, 21 and 24

The Examiner has rejected claims 15, 20, 21 and 24 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,172,045 to ("Burr et al.") It is respectfully submitted that this rejection should be reversed for the following reasons.

To reject a claim under 35 U.S.C. § 102(b), the Office must demonstrate the presence in a single prior art reference disclosure of each and every element of the claim invention, *arranged as in the claim*. See Lindeman Machinenfabrik v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984). "The identical invention must be shown in as complete detail as is contained in the claim." M.P.E.P. § 2131.

Independent claim 15 recites "an end face of the brush with a plurality of channels; and a supply of lubricant in an area of the end face of the brush . . . , wherein the plurality of channels along the collector end face are open at each end along the collector end face." Independent claim 20 recites "at least one brush, wherein a collector-side end face of the at least one brush has a plurality of channels; and a supply of lubricant . . . , wherein the at least one brush contains the lubricant at a location which is at least one of: (a) in or on the collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the channels are open at each end along the collector-side end face."

Burr is directed to a brush 1 having narrow recesses or slots 2 filled with insert or filler 3. However, there is no disclosure in Burr that the plurality of channels (31) along the collector end face (30) are open at each end along the

collector end face (30), as recited in Claims 15 and 20 of the present application. In fact, Burr clearly teaches away from Applicants' invention: in column 1, lines 30-33, it is indicated that the filler material is "**permanently secured** in a recess formed in the brush body," and that "it is preferred to locate the strips close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush." (See column 4, lines 2-6). Furthermore, Burr clearly indicates that slots or recesses 2 are filled with a plastic heat-hardenable composition 3, which is **baked to solid state and integrally united to the body** of the brush 1, i.e., the **slots or recesses are not open**.

The Examiner responds by contending that: a) "during prosecution, the claims can be interpreted as broad as possible"; b) "the claims are open-ended claims"; c) "[t]he present application also shows the open recesses (31) in an intermediate stage which then are filled with oil lubricant"; d) "claims 15 and 20 do not definitely recite oil lubricant," but "these claims just recite lubricant"; and e) "these claims do not definitely recite that the recesses are open in a final stage." (1/3/03 Final Office Action, p. 1). Applicants address each of these contentions below.

First, the Examiner's contention that "during prosecution, the claims can be interpreted as broad as possible," is incorrect. In fact, during patent examination, the pending claims must be "given the broadest reasonable interpretation **consistent with the specification**." MPEP 2111. Reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, **is a quite different thing from reading limitations of the specification into a claim**, to thereby narrow the scope of the claim. MPEP 2111. In addition, the broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. MPEP 2111.

Second, the Examiner's contention that the "claims are open-ended claims" is completely irrelevant: the pertinent issue is whether all elements of the

claim, *arranged as in the claim*, when properly interpreted in light of the specification, are fully taught by Burr. To the extent the Examiner is contending that channels of Burr which are open at one point in time but subsequently blocked with solid material for normal use can still satisfy the claimed limitation, this interpretation is clearly flawed: Burr clearly indicates that the composition 3 is **baked to a solid state for its intended use of filling the recesses 2, i.e., the open state of the recess does not represent the final, intended state** of the recess.

Third, to the extent the Examiner argues that “[t]he present application also shows the open recesses (31) in an intermediate stage which then are filled with oil lubricant,” this contention is at best irrelevant, since the presence of oil lubricant in the area near the open recesses doesn’t completely shut the open recesses, directly in contrast to the solid material that completely seals the recess disclosed in Burr.

Furthermore, to the extent the Examiner argues that “claims 15 and 20 do not definitely recite oil lubricant,” but “these claims just recite lubricant,” and that “these claims do not definitely recite that the recesses are open in a final stage,” Applicants respectfully submit that the Examiner’s contentions clearly violate the established rules of claim interpretation. Essentially, the Examiner’s argument is that because claims 15 and 20 do not exclude lubricants other than oil lubricants, and because these claims do not explicitly state the “recesses are open in a final stage,” claims 15 and 20 may be interpreted to encompass **channels which are sealed with a solid material**. However, the pending claims must be “given the broadest reasonable interpretation **consistent with the specification**.” MPEP 2111. Clearly, the Applicants’ specification does not support the Examiner’s overly broad interpretation encompassing a solid sealing of the open channels. Furthermore, the Examiner’s interpretation violates the rule that the terms of the claims may not be given a meaning repugnant to their normal meaning. See M.P.E.P. §2173.05(a). The term “open” is unambiguous, and specifically means “[a]ffording unobstructed entrance and exit; not shut or closed.” (The American

Heritage Dictionary of the English Language, Fourth Edition). The Examiner admits that the “**open recesses (2)** [of Burr] . . . **are filled** with relatively soft lubricating material.” (Office Action at page 2, line 13; citing Burr, column 2, lines 35-37; emphasis added). Additionally, the cited section of Burr indicates that “the brush has a filler 3 of relatively soft lubricating material **integrally united** with the body 1 thereof.” (See column 2, lines 36-38; emphasis added). A material **integrally united** with the body of the brush and **filling the open recesses** of the brush does not anticipate an open channel, as recited in Claims 15 and 20.

For the foregoing reasons, Burr does not anticipate the subject matter of Claims 15 and 20. Claims 21 and 24 depend from, and include all the limitations of, Claims 20 and 15, respectively, and therefore Claims 21 and 24 are also not anticipated by Burr. Reversal of the anticipation rejection of Claims 15, 20, 21 and 24 is hereby respectfully requested.

B. Rejection of Claims 6, 10, 11 14, 16, 19, 22 and 23

Claims 6, 10, 11, 14, 16, 19, 22 and 23 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Burr (U.S. Patent No. 2,172,045) in view of Portail (U.S. Patent No. 2,555,997). Applicants respectfully submit that this rejection should be reversed for at least the following reasons.

Independent Claim 6 recites “at least one brush; . . . and a supply of oil lubricant . . . , wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face.” Independent Claim 10 recites “an end face; and a supply of oil lubricant in an area of the end face . . . , wherein the brush has a plurality of grooves along the collector end face and wherein the grooves are open at each end along the collector end face.”

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143. Applicants respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness.

Burr is directed to a brush 1 having narrow recesses or slots 2 filled with a **solid insert or filler** 3. Portail discloses a sliding contact of electric machines where a thin layer of a lubricant is spread over a commutator 1 via a brush 2. However, the combination of Burr and Portail clearly fail to teach or suggest that **the plurality of grooves (31) along the collector end face (30) are present at each end along the collector end face (30)**, as recited in claims 6 and 10. Burr actually teaches away from Applicants' claimed invention: Burr states that the solid filler material is **"permanently secured in a recess** formed in the brush body," (col. 1, l. 30-33), and that "it is preferred to locate **the strips** close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush." (Col. 4, l. 2-6).

Additionally, the asserted combination of Portail and Burr is unwarranted for the following reason: the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, which defeats the obviousness conclusion, as a matter of law. See MPEP 2143.01. Applicants note that Burr teaches the use of a filler material that is "permanently secured in a recess formed in the brush body, (see column 1,

lines 30-33), while Portail teaches the use of brushes through which thin film (11) that can be fed through (see column 4, lines 13-15). It is clear that a thin film (11) of Portail cannot be permanently secured to the recesses (2) of Burr, and the permanently securable filler material (3) of Burr cannot be fed through the brush (2) of Portail. Accordingly, the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes. If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Since the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, there is clearly no motivation to make the asserted combination.

The Examiner asserted in the "Response to Arguments" section of 1/3/03 Office Action that since Burr and Portail are classified in the same class and subclass, and since Burr uses a solid lubricant and Portail uses an oil lubricant, it would have been obvious to use the oil lubricant of Portail in the device according to Burr. However, this reasoning fails for at least two reasons. First, an object of Burr is to "provide a brush having a portion of its working face formed by a filler of relatively soft lubricating material, **permanently secured in a recess** formed in the brush body." (Burr, col. 1, lines 29-33). Therefore, an object of Burr teaches away from combination with the oil lubricant of Portail. Second, a further object of Burr is providing a lubricating material that will not interfere with current passing between the brush and the commutator (or ring), i.e., the filler material should have a high resistance. (Burr, col. 3, lines 21-25 and lines 30-35). In contrast, Portail teaches the use of an organic lubricant for the purpose of providing an "improved sliding and rotating contacts for electric machines, and in particular commutators and brushes cooperating with these commutators." (Portail, col. 1, lines 14-17). Portail applies a thin film of oil, "which normally is an insulator, but is capable of becoming a conductor of electricity when exposed to the influence of the electric current." (Portail, col. 2,

lines 10-12). Therefore, the object of the lubricating material in Burr serves an **pp site purp se** to the lubricating material in Portail, i.e., Burr calls for an insulating lubricating material, while Portail recites a conducting lubricating material. For this additional reason, the combination of Burr and Portail is improper.

For the foregoing reasons, independent claims 6 and 10 are allowable over the combination of Burr and Portail. Claims 11, 14, 16, 19, 22 and 23 depend from, and include all the limitations of, claim 10 or claim 6, so claims 11, 14, 16, 19, 22 and 23 are similarly allowable over the combination of Burr and Portail. Reversal of the obviousness rejection of claims 6, 10, 11 14, 16, 19, 22 and 23 is respectfully requested.

### C. Rejection of Claims 12 and 17

Claims 12 and 17 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over Burr (U.S. Patent No. 2,172,045) in view of Portail (U.S. Patent No. 2,555,997) and further in view of Grunewald et al. (U.S. Patent No. 3,841,906). Applicants respectfully submit that this rejection should be reversed for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143.

Claims 12 and 17 depend from previously-discussed claims 10 and 6, respectively. With regard to claims 6 and 10, the combination of Burr and Portail clearly fail to teach or suggest that **the plurality of grooves (31) along the collector end face (30) are open** at each end along the collector end face (30), as recited in claims 6 and 10. Burr actually teaches away from Applicants' claimed invention: Burr states that the solid filler material is **"permanently secured in a recess** formed in the brush body," (col. 1, l. 30-33), and that "it is preferred to locate **the strips** close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush." (Col. 4, l. 2-6).

Additionally, the asserted combination of Portail and Burr is unwarranted because the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, which defeats the obviousness conclusion, as a matter of law. See MPEP 2143.01. Applicants note that Burr teaches the use of a filler material that is "permanently secured in a recess formed in the brush body, (see column 1, lines 30-33), while Portail teaches the use of brushes through which thin film (11) that can be fed through (see column 4, lines 13-15). It is clear that a thin film (11) of Portail cannot be permanently secured to the recesses (2) of Burr, and the permanently securable filler material (3) of Burr cannot be fed through the brush (2) of Portail. Accordingly, the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes. Since the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, there is clearly no motivation to make the asserted combination. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

The asserted combination of Burr and Portail is further negated by the following reasons. First, an object of Burr is to "provide a brush having a portion of its working face formed by a filler of relatively soft lubricating material, **permanently secured in a recess** formed in the brush body." (Burr, col. 1, lines

29-33). Therefore, an object of Burr teaches away from combination with the oil lubricant of Portail. Second, a further object of Burr is providing a lubricating material that will not interfere with current passing between the brush and the commutator (or ring), i.e., the filler material should have a high resistance. (Burr, col. 3, lines 21-25 and lines 30-35). In contrast, Portail teaches the use of an organic lubricant for the purpose of providing an “improved sliding and rotating contacts for electric machines, and in particular commutators and brushes cooperating with these commutators.” (Portail, col. 1, lines 14-17). Portail applies a thin film of oil, “which normally is an insulator, but is capable of becoming a conductor of electricity when exposed to the influence of the electric current.” (Portail, col. 2, lines 10-12). Therefore, the object of the lubricating material in Burr serves an **opposite purpose** to the lubricating material in Portail, i.e., Burr calls for an insulating lubricating material, while Portail recites a conducting lubricating material. For this additional reason, the combination of Burr and Portail as applied against claims 6 and 10 is improper.

Furthermore, Applicants note that Grunewald fails to disclose a brush wherein the brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face, as recited in claims 6 and 10. Accordingly, since Grunewald does not overcome the deficiencies of Burr and Portail as applied against claims 6 and 10, the combination of Burr, Portail and Grunewald fails to render obvious the subject matter of dependent claims 12 and 17. For at least the reasons discussed above, reversal of the obviousness rejection of Claims 12 and 17 based on the combination of Burr, Portail and Grunewald is respectfully requested.

#### D. Rejection of Claims 13 and 18

Claims 13 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burr (U.S. Patent No. 2,172,045) in view of Portail (U.S. Patent No. 2,555,997) and further in view of Rogelein et al. (U.S. Patent No. 4,820,948). Applicants respectfully submit that this rejection should be reversed for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143.

Applicants note that claims 13 and 18 depend from previously-discussed claims 10 and 6, respectively. With regard to claims 6 and 10, the combination of Burr and Portail clearly fail to teach or suggest that **the plurality of grooves (31) along the collector end face (30) are open** at each end along the collector end face (30), as recited in claims 6 and 10. Burr actually teaches away from Applicants' claimed invention: Burr states that the solid filler material is **"p rmanently secured in a recess** formed in the brush body," (col. 1, l. 30-33), and that "it is preferred to locate **the strips** close to opposite edges of the working face of the brush, since this arrangement of the lubricating strips tends to provide a smoother riding brush." (Col. 4, l. 2-6).

Additionally, the asserted combination of Portail and Burr is unwarranted because the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, which defeats the obviousness conclusion, as a matter of law. See MPEP 2143.01. Applicants note that Burr teaches the use of a filler material that is "permanently secured in a recess formed in the brush body, (see column 1, lines 30-33), while Portail teaches the use of brushes through which thin film (11) that

can be fed through (see column 4, lines 13-15). It is clear that a thin film (11) of Portail cannot be permanently secured to the recesses (2) of Burr, and the permanently securable filler material (3) of Burr cannot be fed through the brush (2) of Portail. Accordingly, the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes. Since the proposed modification would render both the invention of Burr as well as the invention of Portail unsatisfactory for their intended purposes, there is clearly no motivation to make the asserted combination. In re Gordon, 733 F.2d 900, 221 U.S.P.Q. 1125 (Fed. Cir. 1984).

The asserted combination of Burr and Portail is further negated by the following reasons. First, an object of Burr is to “provide a brush having a portion of its working face formed by a filler of relatively soft lubricating material, **p rmanently secured in a recess** formed in the brush body.” (Burr, col. 1, lines 29-33). Therefore, an object of Burr teaches away from combination with the oil lubricant of Portail. Second, a further object of Burr is providing a lubricating material that will not interfere with current passing between the brush and the commutator (or ring), i.e., the filler material should have a high resistance. (Burr, col. 3, lines 21-25 and lines 30-35). In contrast, Portail teaches the use of an organic lubricant for the purpose of providing an “improved sliding and rotating contacts for electric machines, and in particular commutators and brushes cooperating with these commutators.” (Portail, col. 1, lines 14-17). Portail applies a thin film of oil, “which normally is an insulator, but is capable of becoming a conductor of electricity when exposed to the influence of the electric current.” (Portail, col. 2, lines 10-12). Therefore, the object of the lubricating material in Burr serves an **opposite purpose** to the lubricating material in Portail, i.e., Burr calls for an insulating lubricating material, while Portail recites a conducting lubricating material. For this additional reason, the combination of Burr and Portail as applied against claims 6 and 10 is improper.

Furthermore, Applicants note that Rogelein fails to disclose a brush wherein the brush has a plurality of grooves along the collector-side end face and

wherein, the grooves are open at each end along the collector-side end face, as recited in claims 6 and 10. Accordingly, since Rogelein does not overcome the deficiencies of Burr and Portail as applied against claims 6 and 10, the combination of Burr, Portail and Rogelein fails to render obvious the subject matter of dependent claims 13 and 18.

Independent of the above, Applicants note that Rogelein fails to disclose a dust guard for protecting the brush, as recited in claims 13 and 18. Rogelein merely discloses an electric motor 1 having a rubber collar 29 to trap oil 34. For this additional reason, claims 13 and 18 are not rendered obvious by the combination of Burr, Portail and Rogelein.

For at least the reasons discussed above, reversal of the obviousness rejection of claims 13 and 18 based on the combination of Burr, Portail and Rogelein is respectfully requested.

E. Rejection of Claims 6, 10, 11, 14-16 and 19-24

Claims 6, 10, 11, 14-16 and 19-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,909,077 to Bruhn (the “Bruhn” reference) in view of Portail. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). In addition, generalized assertions that it would have been obvious to modify the reference teachings do not properly support a § 103 rejection. See In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992). Furthermore, even if a claim concerns a “technologically simple concept,” there still must be some finding as to the “specific understanding or principle within the knowledge

of a skilled artisan” that would **m tivate a pers n having n knowl dge of th claim d subj ct matt r** to “make the combination in the manner claimed.” In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, or if the proposed modification would change the principle of operation of the prior art invention being modified, then the teachings of the combined references are not sufficient to render the claims *prima facie* obvious. MPEP 2143.01.

The Examiner’s rationale for finding a motivation to combined the applied reference is simply that since Bruhn and Portail are from the same field of endeavor, the purpose disclosed by one inventor would have been recognized in the pertinent art of the other. Applicants respectfully submit that this assertion is at best a conclusory statement, which the Federal Circuit noted in the case of In re Lee “do not adequately address the issue of motivation to combine.” 61 USPQ2d 1430 (Fed. Cir. 2002). “This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority.” Id. at 1434. According to the Court, the rejection by the Board of the need for any specific hint or suggestion in a particular reference amounted to an “[o]mission of a relevant factor” justifying reversal. Id. at 1435

Even if one assumes for the sake of argument that Bruhn and Portail are from the same field of endeavor, there is no suggestion in the teachings of Bruhn and Portail to modify the grooves of Bruhn with the lubricant of Portail to arrive at the claimed subject matter, because the intended purposes of Bruhn and Portail are not only fundamentally different from one another, but also fundamentally different from the claimed invention. The purpose for the grooves in Bruhn is abrasion resistance and noise reduction. (See Abstract of Bruhn). In contrast, the object of Portail is to provide “improved sliding and rotating contacts for electric machines, and in particular commutators and brushes cooperating with these commutators.” (Column 1, lines 14-17). Since the grooves of Bruhn serve a different purpose than the oil lubricant of Portail, there is simply no motivation

to combine the oil lubricant with the grooves. Furthermore, there is no teaching or suggestion in either Bruhn or Portail regarding the reduction of the deleterious presence of oil lubricant in the electric machine, or of lowering the risk of conducting parasitic currents, as described in the present application. (See specification at page 3, lines 15-23).

For the foregoing reasons, the combination of the applied references fails to support a *prima facie* case of obviousness, and independent claims 6, 10, 15 and 20 are allowable over the combination of Bruhn and Portail. Claims 11, 14, 16, 19, 21, 22 and 23 depend from, and include all the limitations of, of claims 6, 10, 15 or 20, and therefore Claims 11, 14, 16, 19, 21, 22 and 23 are similarly allowable over the combination of Bruhn and Portail. Reversal of the obviousness rejection claims 6, 10, 11, 14-16 and 19-24 is hereby respectfully requested.

#### F. Rejection of Claims 12 and 17

Claims 12 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruhn in view of Portail and further in view of Grunewald. Applicants respectfully submit that this rejection should be reversed for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143.

Applicants note that claims 12 and 17 depend from previously-discussed claims 10 and 6, respectively. Even if one assumes for the sake of argument that Bruhn and Portail are from the same field of endeavor, there is no suggestion in the teachings of Bruhn and Portail to modify the grooves of Bruhn with the lubricant of Portail to arrive at the claimed subject matter, because the intended purposes of Bruhn and Portail are not only fundamentally different from one another, but also fundamentally different from the claimed invention. Furthermore, Grunewald fails to provide any motivation to combine Bruhn and Portail, let alone combine Grunewald with Bruhn and/or Portail. The object of Grunewald is "to provide a method of treating a carbon brush blank in which the brush exhibits characteristics of operability at elevated temperatures and low humidity with reduced wear rate." (See column 1, lines 56-59). Therefore, Grunewald provides no motivation to combine the teaching of Grunewald with the noise reduction teaching of Bruhn, for example.

For the foregoing reasons, the Bruhn, Portail and Grunewald fails to render obvious claims 12 and 17, which depend from claims 10 and 6, respectively. Reversal of the rejection under 35 U.S.C. §103(a) of claims 12 and 17 is hereby respectfully requested.

#### G. Rejection of Claims 13 and 18

Claims 13 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bruhn in view of Portail and further in view of Rogelein. Applicants respectfully submit that this rejection should be withdrawn for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. See Northern Telecom, Inc. v. Datapoint Corp., 908 F. 2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F. 2d 831, 834 (Fed. Cir. 1990). The Examiner bears the initial burden of establishing a *prima*

*facie* case of obviousness. See M.P.E.P. §2142. To establish a *prima facie* case of obviousness, the Examiner must show, *inter alia*, that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the references and that, when so modified or combined, the prior art teaches or suggests all of the claim limitations. See M.P.E.P. §2143.

Applicants note that claims 13 and 18 depend from previously-discussed claims 10 and 6, respectively. Even if one assumes for the sake of argument that Bruhn and Portail are from the same field of endeavor, there is no suggestion in the teachings of Bruhn and Portail to modify the grooves of Bruhn with the lubricant of Portail to arrive at the claimed subject matter, because the intended purposes of Bruhn and Portail are not only fundamentally different from one another, but also fundamentally different from the claimed invention. Furthermore, Rogelein fails to provide any motivation to combine Bruhn and Portail, let alone combine Rogelein with Bruhn and/or Portail. The object of Rogelein is “to prevent the lubricant migrating on to the commutator segments.” (Col. 1, lines 46-47). Therefore, Rogelein provides no motivation to combine the oil containment teaching of Rogelein with the noise reduction teaching of Bruhn, for example. In addition, Rogelein fails to disclose a dust guard for protecting the brush, as recited in claims 13 and 18.

For the foregoing reasons, claims 13 and 18, which depend from claims 10 and 6, respectively, are not rendered obvious by the combination of Bruhn, Portail and Rogelein. Reversal of the rejection under 35 U.S.C. §103(a) of Claims 13 and 18 is hereby respectfully requested.

## IX. CONCLUSION

For the foregoing reasons, it is respectfully submitted that the final rejection of claims 6 and 10-24 should be reversed.

Respectfully submitted,

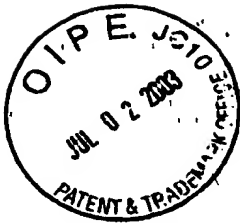
KENYON & KENYON

Dated: 6/30, 2003

By: *Richard L. Mayer* (by *J. L.*)  
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P. No. 36,197)

**CUSTOMER NO. 26646**

PATENT & TRADEMARK OFFICE



[10191/1234]

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants : Dieter SCHULER et al.  
Serial No. : 09/446,390  
Filed : December 21, 1999  
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Examiner : Kimberly N. McCLEAN-MAYO  
Art Unit : 2834  
Confirmation No. : 2255

Mail Stop Appeal Brief-Patents  
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P. O. Box 1450  
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Appeal Brief-Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

Date: 6/30, 2003 Reg. No. 36,197

Signature: [Signature]  
Jong H. Lee

**APPENDIX TO APPELLANTS' APPEAL BRIEF  
UNDER 37 C.F.R. § 1.192**

S I R :

The claims involved in this appeal, claims 6 and 10-24, in their current form after entry of all amendments presented during the course of prosecution, are set forth below:

**APPEALED CLAIMS:**

6. An electric machine comprising:  
a commutator;  
at least one brush; and

a supply of oil lubricant for providing lubrication between the commutator and the at least one brush,

wherein the at least one brush contains the lubricant at least one of: (a) in or on a collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the brush has a plurality of grooves along the collector-side end face and wherein the grooves are open at each end along the collector-side end face.

10. A brush for an electric machine equipped with a collector, comprising:  
an end face; and

a supply of oil lubricant in an area of the end face allocated to the collector, wherein the brush has a plurality of grooves along the collector end face and wherein the grooves are open at each end along the collector end face.

11. The brush according to claim 10, wherein the collector has recesses which function as storage reservoirs for the oil lubricant.

12. The brush according to claim 10, wherein the brush is made from carbon, pressed metal powder or alloys thereof.

13. The brush according to claim 10, wherein the brush is protected by a dust guard.

14. The brush according to claim 10, wherein the end face has a plurality of channels.

15. A brush for an electric machine equipped with a collector, comprising:  
an end face of the brush with a plurality of channels; and

a supply of lubricant in an area of the end face of the brush allocated to the collector, wherein the plurality of channels along the collector end face are

open at each end along the collector end face.

16. The brush according to claim 6, wherein the commutator has recesses which function as storage reservoirs for the oil lubricant.

17. The brush according to claim 6, wherein the brush is made from carbon, pressed metal powder or alloys thereof.

18. The brush according to claim 6, wherein the brush is protected by a dust guard.

19. The brush according to claim 6, wherein the collector-side end face has a plurality of channels.

20. An electric machine comprising:

a commutator;

at least one brush, wherein a collector-side end face of the at least one brush has a plurality of channels; and

a supply of lubricant for providing lubrication between the commutator and the at least one brush,

wherein the at least one brush contains the lubricant at a location which is at least one of: (a) in or on the collector-side end face of the at least one brush, and (b) in or on a partial length of the at least one brush beginning at the collector-side end face of the at least one brush, wherein the channels are open at each end along the collector-side end face.

21. The electric machine according to Claim 20 wherein the collector has a plurality of grooves.

22. The electric machine according to Claim 6 wherein the collector has a plurality of grooves.

23. The brush according to Claim 10 wherein the collector has a plurality of

grooves.

24. The brush according to Claim 15, wherein the collector has a plurality of grooves.

Respectfully submitted,

KENYON & KENYON

Dated: 6/30, 2003

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